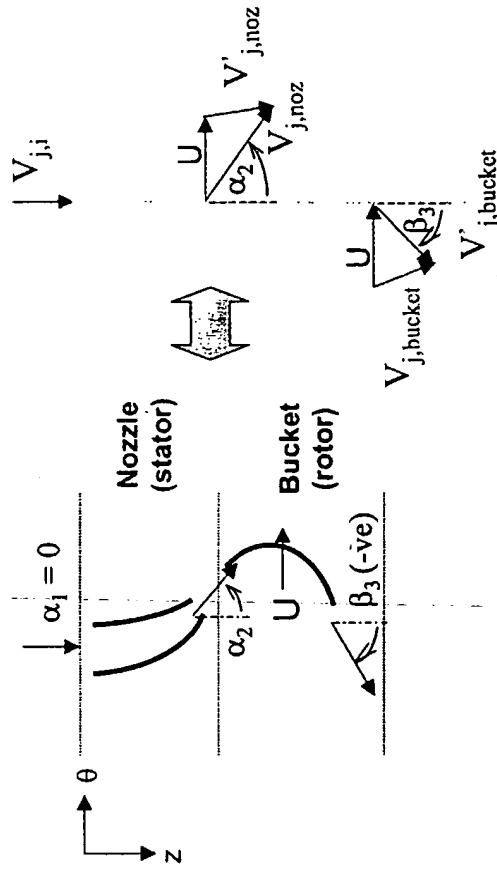


Fig. 1



- $V_{j,i}$, $V_{j,noz}$, $V_{j,bucket}$ - stator frame of reference
- $V'_{j,i}$, $V'_{j,noz}$, $V'_{j,bucket}$ - rotor frame of reference
- U : rotor speed ($\omega \cdot r$)
- α_2 , β_3 : design parameters

Fig. 2

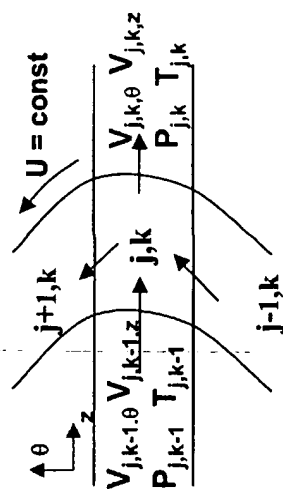


Fig. 3

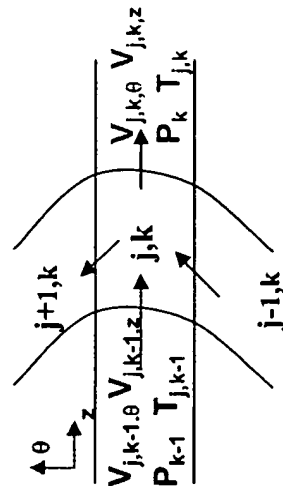


Fig. 4

Measurement										Model			
MW	CPD (psig)	CPD (psia)	CPDa (atm)	CPR (calc)	TTRF (F)	CTD (F)	IGV (deg)	SPH (deg)		Tmp@peak (F)	Tmp@trough (F)	TTRF (F)	
69.7	195.2	209.63	14.26	14.53	2365	694	84.2	84.2	52	2485	2235	2367	60
65	191	205.43	13.98	14.24	2310	686	83.9	83.9	54	2430	2180	2311.9	62
60.1	179.2	193.63	13.18	13.42	2299	670	75.6	75.6	56	2418	2168	2299.8	60
55.1	168.9	183.33	12.47	12.70	2286	659	68.4	68.4	58	2405	2155	2286	62
50	156.8	171.23	11.65	11.87	2277	643	61.9	61.9	60	2395	2145	2276.8	62
45	145.6	160.03	10.89	11.09	2250	633	56.7	56.7	62	2370	2120	2251.7	62

Fig. 5

10065710

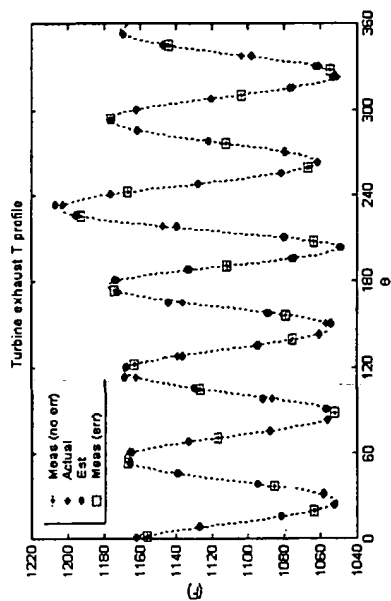


Fig. 6(a)

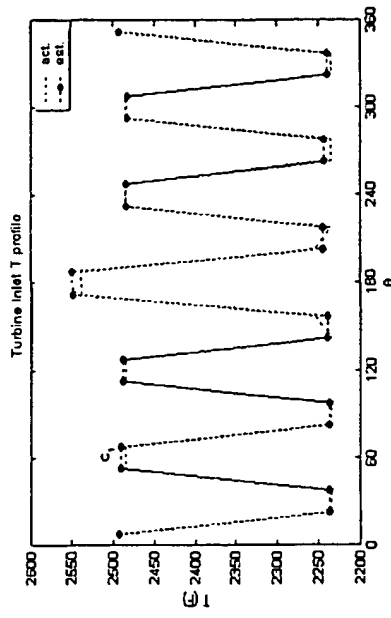


Fig. 6(b)

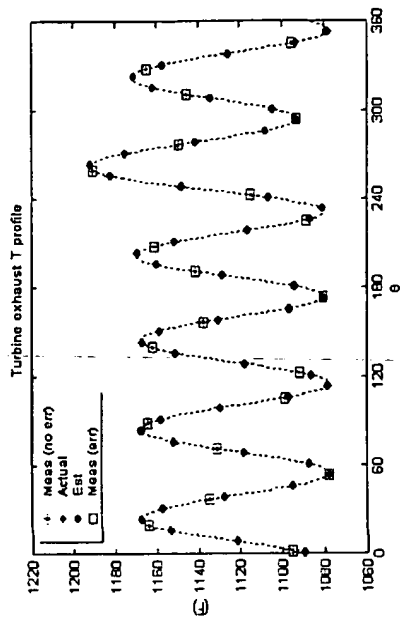


Fig. 7(a)

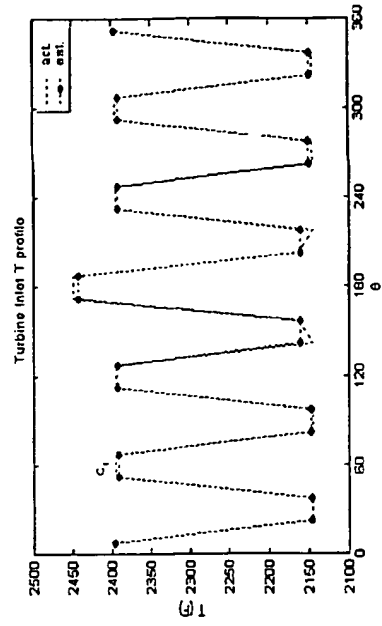


Fig. 7(b)

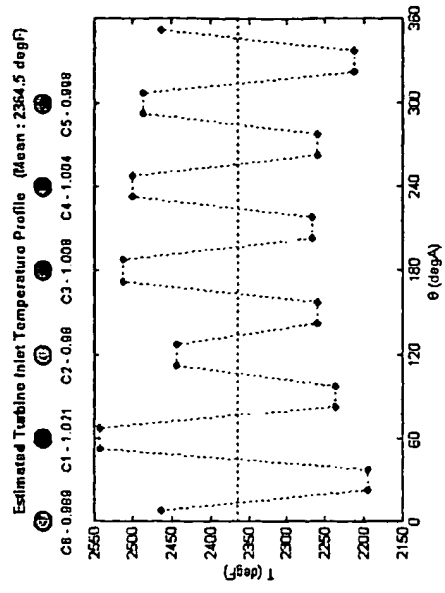


Fig. 8(b)

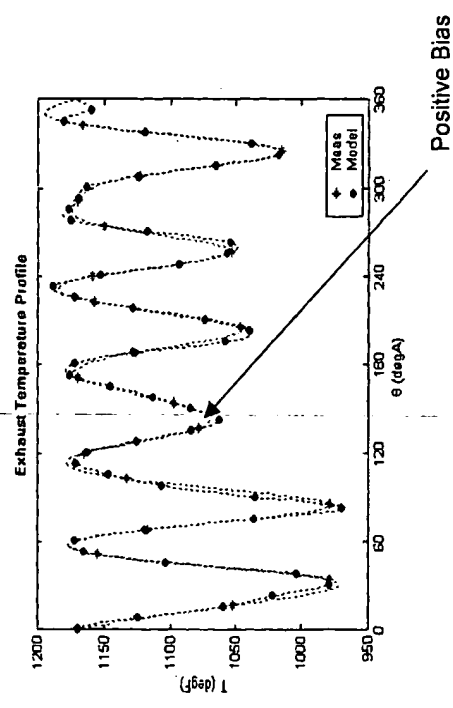


Fig. 8(a)

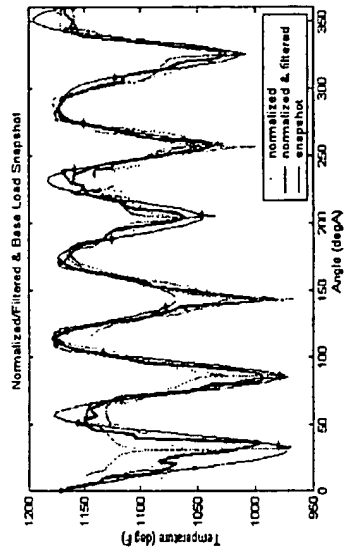


Fig. 9

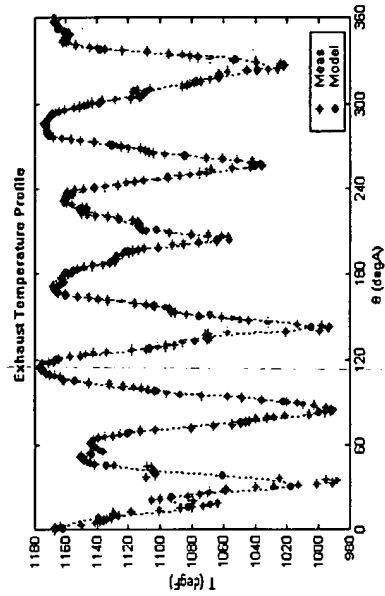


Fig. 10(a)

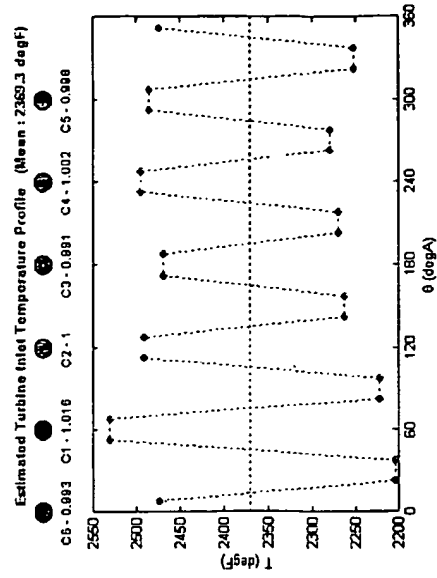


Fig. 10(b)